

REMARKS

In the official action dated June 13, 2005, claims 11 and 15-17 were rejected as anticipated by Kim (US 2002/0137693) and claims 12-14, 18, and 20 were rejected as unpatentable over Kim in view of one or both of applicant's prior art (APA) and Noguchi et al. By way of the forgoing amendments, claims 11 and 12 have been amended and claim 21 has been added. In view of the foregoing amendments and the following remarks, the rejections are respectfully traversed and reconsideration of this application is respectfully requested.

In the official action, the examiner noted several objections to the specification and claims. As an initial matter, the applicant has amended the specification and claims as suggested by the examiner. In addition, the applicant has amended the claims to use the phrase "in contact with" to clarify the structure of the MIM capacitor as shown in the drawings. The specification has also been amended to clarify that the thickness of a combination of the sacrificial layer and the dielectric layer may be substantially uniform as illustrated in Fig. 2b. The applicants respectfully submit that no new matter has been added by the foregoing amendments.

Claim 11 recites, *inter alia*, an MIM capacitor of a semiconductor device comprising a dielectric layer in contact with a lower metal layer, a substrate surface, and a sacrificial layer.

Kim discloses a method for forming an MIM capacitor. Kim teaches that an MIM dielectric 29 is disposed on a dielectric film 25 and a first metal film 23. Kim does not teach or suggest that a dielectric layer is in contact with a substrate surface as now recited in claim

11. To the contrary, as shown in FIG. 2B, Kim teaches that the first metal film 23 is disposed over the entire semiconductor substrate 21, precluding any dielectric layer from making contact with the semiconductor substrate 21.

New claim 21 recites that a thickness of the sacrificial layer and the dielectric layer is substantially uniform. In contrast to the structure recited in claim 21, as shown below in FIG. A, Kim teaches the formation of an insulating film 29 having a uniform thickness on the surface of a trench. As a result, as illustrated in FIG. A, the dielectric material comprising the dielectric film 25 and the insulating film 29 is thicker at the edges of the capacitor (see, e.g., encircled area).

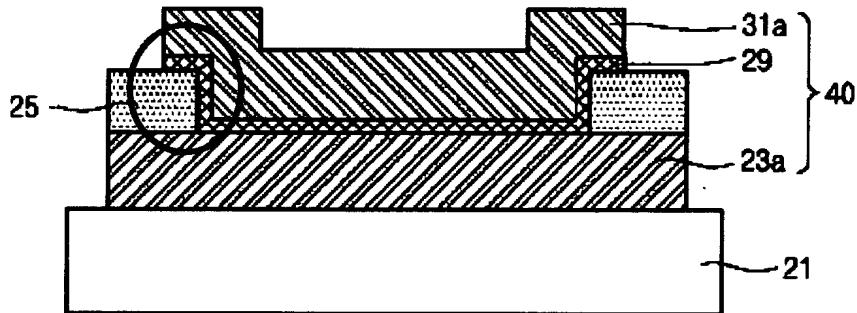


FIG. A

FIGS. B and C below further illustrate the differences between the structure recited in claim 21 and the structure taught by Kim. For example, FIG. B depicts an example embodiment of the structure recited in claim 21. As shown in FIG. B, the dielectric layer 1 is deposited such that the top surface is at a uniform height. In contrast, as shown in FIG. C, Kim teaches that an insulation layer 2 is deposited with a uniform thickness so that the height

of the top surface of the insulation layer at the edges is greater than the height of the top surface of the insulation layer near the center.

FIG. B

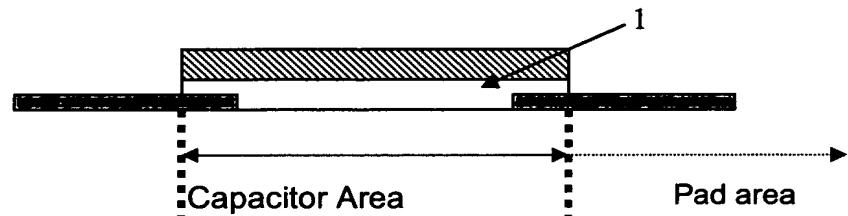
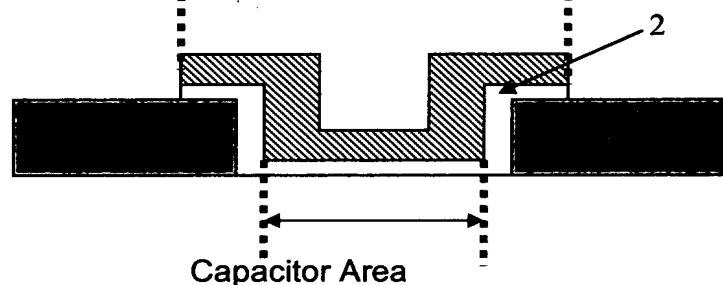


FIG. C



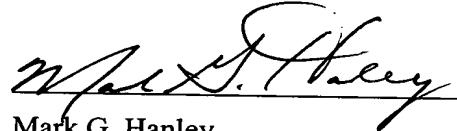
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Response to the Office action dated June 13, 2005**

For at least the foregoing reasons, it is respectfully submitted that claim 11 and claims 12-21 dependent thereon are in condition for allowance. If, for any reason, the examiner is unable to allow the application in the next official action, the examiner is encouraged to telephone the undersigned attorney at the telephone number listed below.

Respectfully submitted,

Hanley, Flight & Zimmerman, LLC
Suite 4220
20 North Wacker Drive
Chicago, Illinois 60606
(312) 580-1020

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Mark G. Hanley
Registration No. 44,736
Attorney for Applicant